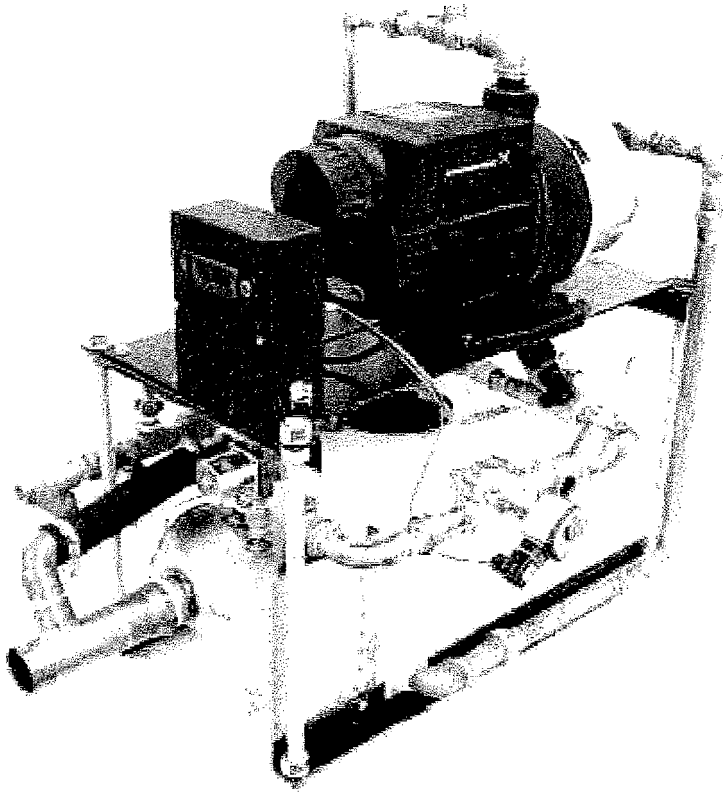
WATER-MIZER PLUSTM

Water Recirculation System with Efficient Tempering for Vacuum Steam Sterilizers

Operation and Maintenance Manual



CONTINENTAL EQUIPMENT COMPANY

Providing Innovative Sterilization Solutions

A Please read this manual!

This manual will guide you through operation and maintenance procedures for your new Water-Mizer PlusTm. Proper installation and operating practices will ensure years of trouble-free service.

Technical support: 800-710-9674

If you have questions, review the troubleshooting guide. If you still have questions call our customer support group at 800-710-9674. Technicians are available from 8:00 a.m. to 5:00 p.m. (central standard time) Monday through Friday, excluding major holidays.

Visit our web site:
www.sterilizer.net

For information about other Continental Equipment Company products, visit our web site, or contact Us using the information listed below.

Corporate headquarters

315 N. Village Terr. - Tongnaoxie, KS 66086
800-710-9674 - 913-845-3583 (fax)
info@sterilizer.net (e-mail)

WATER-MIZER PLUSTM features summary

Application:

The Water-Mizer Plus™ is a water recirculation system combined with an efficient tempering device (Water-Mizer®). The system is intended for use on any steam sterilizer which uses cold water as a method of air removal and is recommended for sterilizers that process wrapped or unwrapped cycles with dry times of 10 minutes or more.

Performance:

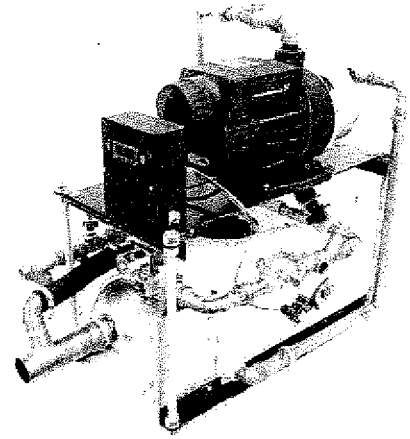
When the Water-Mizer Plus is installed and adjusted properly, the system will provide total water savings of 80% or greater, with per cycle savings of 250 to 400 gallons.

Easy Operation:

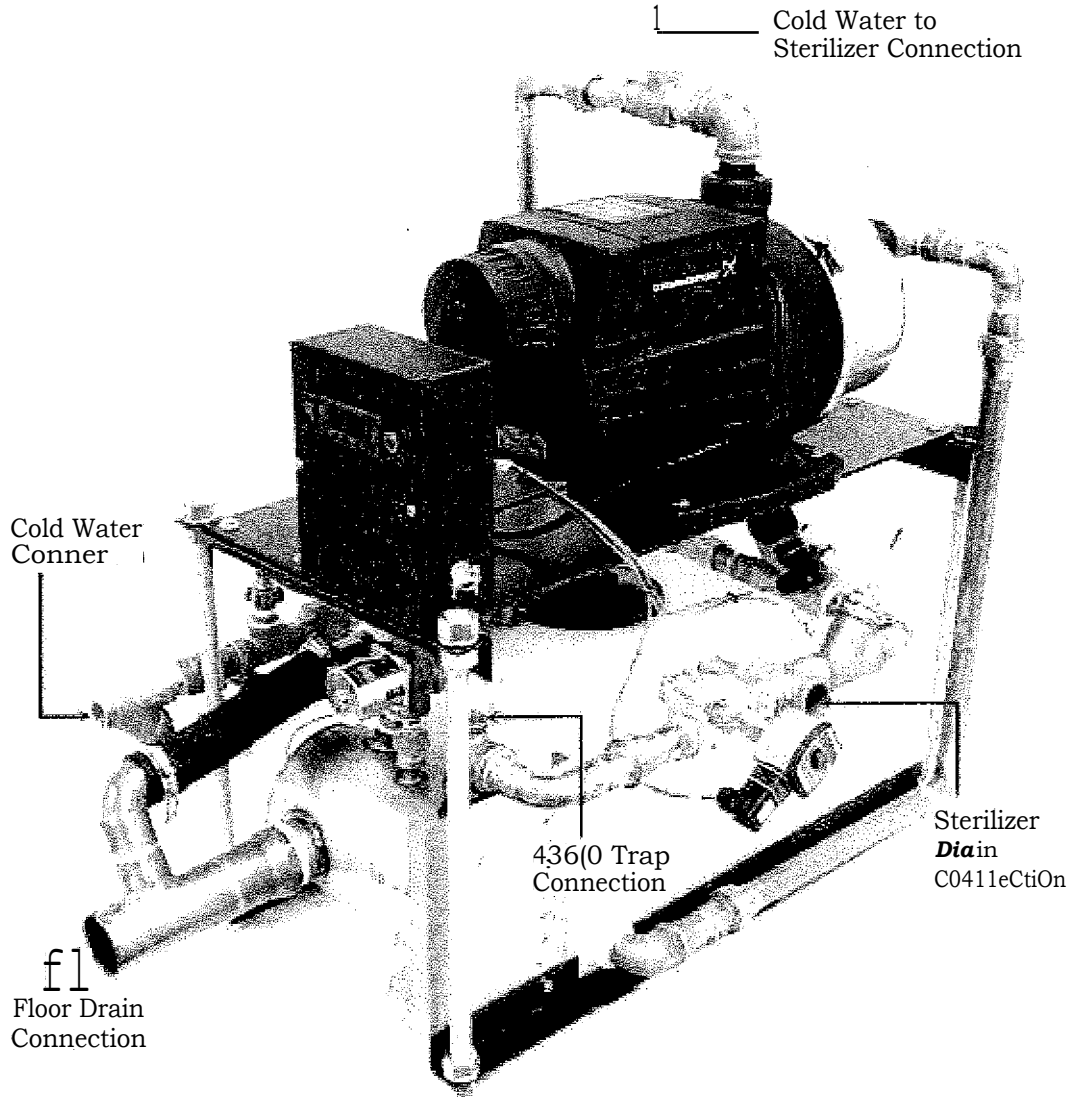
The Water-Mizer Plus™ does not require an operator and does not interface with the sterilizer's control system. Once the Water-Mizer Plus™ has been installed properly by a qualified technician the sterilizer operator can operate the sterilizer just as they did before.

How it works:

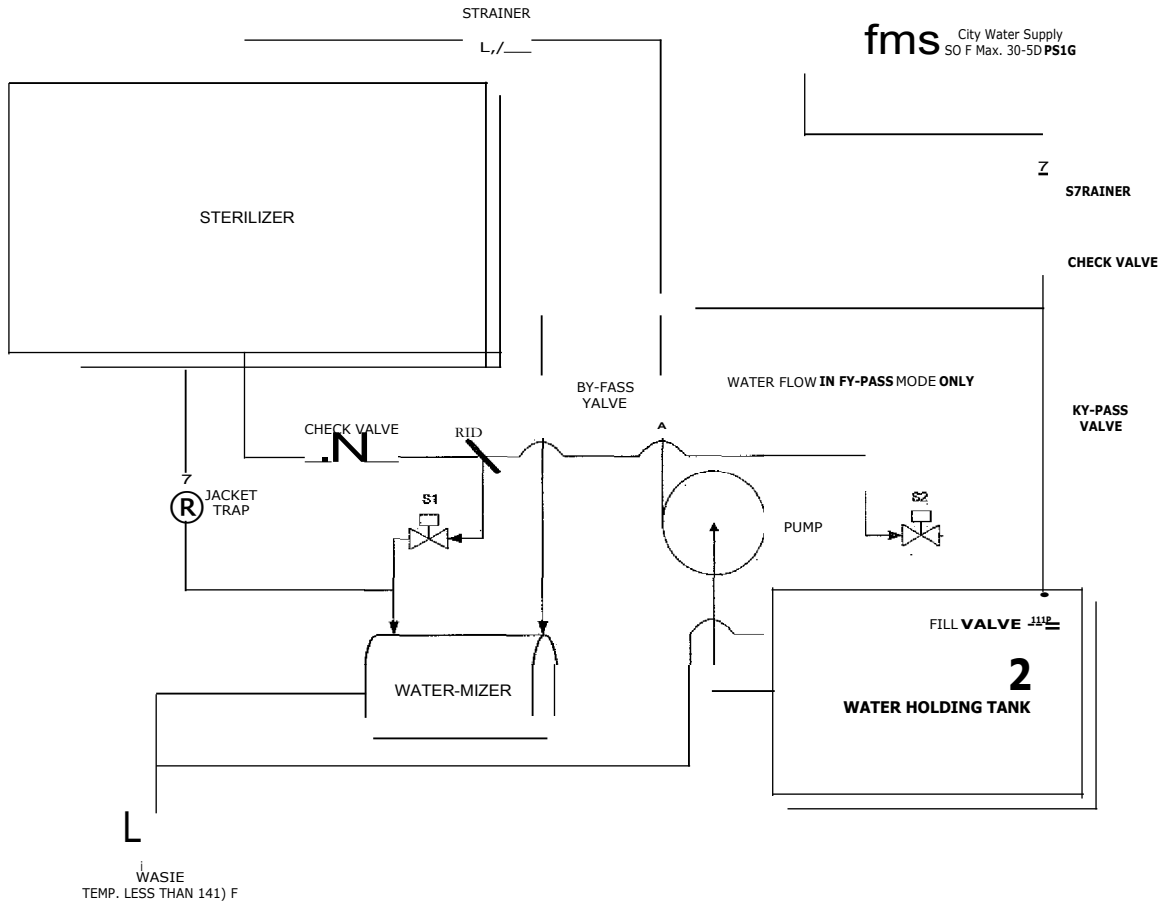
Most vacuum steam sterilizers use a water ejector to create the vacuum. Water ejectors require cold water to function properly. The Water-Mizer Plus TM recirculates water by monitoring the sterilizer drain temperature. When the sterilizer's drain temperature falls below the control set point, the water is recirculated. When the sterilizer's drain temperature rises up to the set point or above, the water is processed through the Water-Mizer®.



WATER-MIZER PLUSTM connections



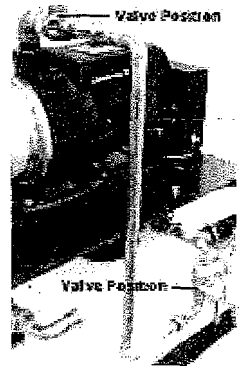
WATER-MIZER PLUS TM piping schematic



WATER-MIZER PLUSTM operation

How to Operate Recirculation Mode:

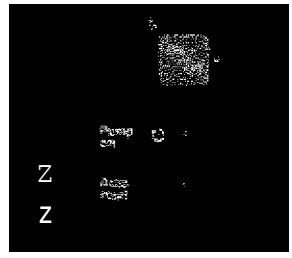
Once properly installed, operate the Water-Mizer Plus™ by turning on the power (green switch) to the main control. Press the set button and then use the arrow keys to set the desired recirculation temperature. A good rule of thumb is to set it 10 degrees above the temperature of the incoming water supply.



Once the recirculation temperature has been set, verify that the bypass valves are in the proper position for recirculation mode (see picture to the right).

When the valves are in the proper position, turn the power (blue switch) on to the pump.

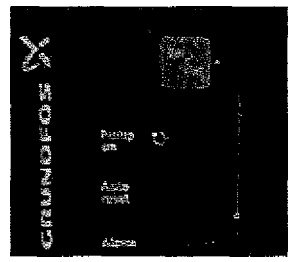
IMPORTANT!! The pump control is separate from the main control and has its own power switch.



The Water-Mizer Plus™ is now in recirculation mode. When the sterilizer is in cycle, the recirculation lamp indicates that the sterilizer drain temperature is below the set point and the operational water is being recirculated.

WATER-MIZER PLUSTM operation

How to Operate Bypass Mode:

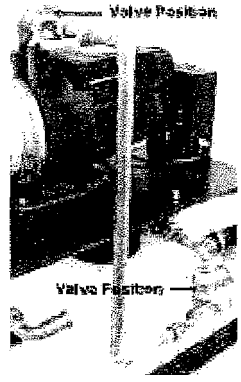


If the recirculation portion of the Water-Mizer Plusim needs to be bypassed, begin by turning off the power (blue switch) to the pump.

I**MPORTANT!!** The pump control is separate from the main control and has its own power switch.

Next, turn off the power (green switch) to the main control.

Next, position the bypass valves in the proper position for bypass mode (see picture to the right).



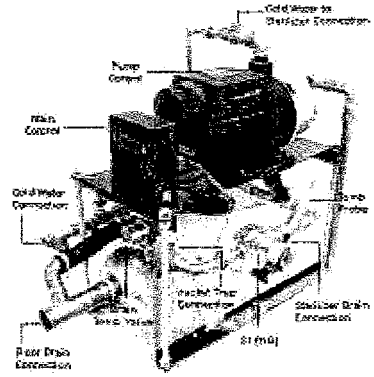
The recirculation portion of the Water-Mizer Plus™ has now been bypassed. The Water-Mizeit) portion of the system is still functioning.

WATER-MIZER PLUSTM maintenance

Quarterly preventive maintenance on your Water-Miter Plus™ is recommended. The procedures described are minimal frequencies and may be increased if utilities or usage warrants.

1.1 Control Assembly

1. inspect control assembly for proper settings and operation.
    a. Insure operating temperature is set for maximum water savings. Usually between 75° and 85°F.
    b. Check harness and terminal board for proper connections.
    c. Check wires for signs of visual damage_
    d. Check indicator light for proper illumination.



1.2 Pump and Tank Assembly

1. Inspect pump for leaks and proper operation.
    a. Check condition of control panel indicator lights. (Refer to section 4.1, fig. 2 in Grundfos manual)
    b. Check pressure tank for proper operation pressure of 22-25 psig. (Refer to section 1.3, fig. 1 in Grundfos manual)

2. Inspect tank for leaks, cracks or damage.
    a. Inspect tank for cleanliness. Remove mineral deposits as required.

1.3 Valves and Piping Assembly ,

1. inspect all valves and piping for leaks and proper operation.
    a. Check water strainers for cleanliness.
    b. Rebuild solenoid valves annually.
    c. Rebuild or replace check valves annually.
    d. Rebuild water fill valve annually.

1.4 Water-Nlizere Assembly

t Insure unit is maintaining drain temperature below 140°F.
    a. Check unit for mineral build up. Clean as required.
    b. Check thermal sensor for mineral build up. Clean as required.

Troubleshooting guide

Control. Related Problems

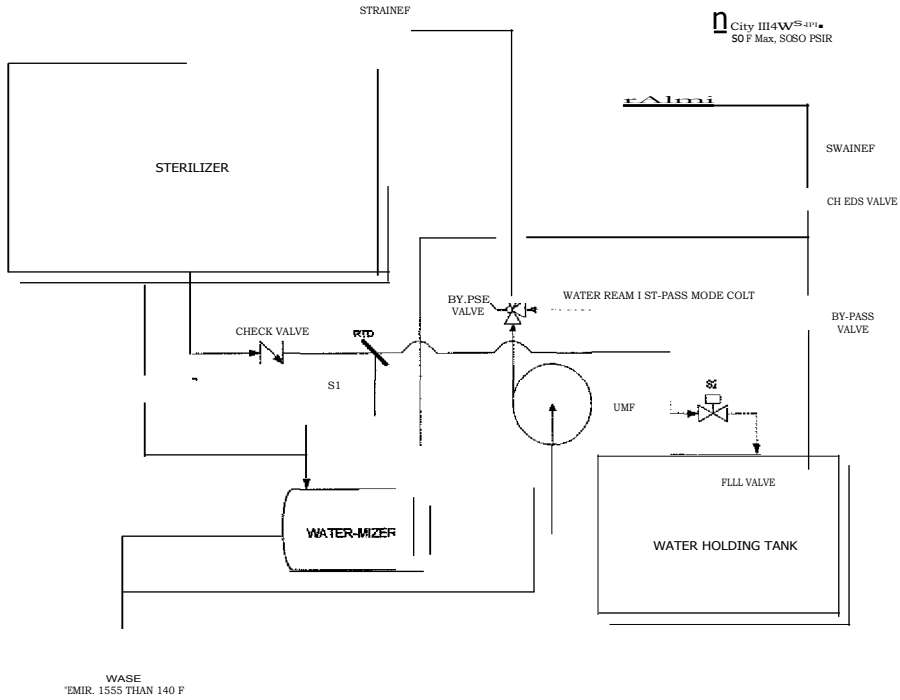
Problem	Possible Cause	Action/Correction
1. No power, blank display	No facility powef to unit	Check facility supply at plug
	Toggle Switch turned Off	Place switch in On position
	Loose connection	Check wiring and connection integrity within control
	Defective Toggle Switch	Replace switch
	Defective Connector Board	Replace Board
2. Unit displays erratic temperature readings	RTD (Temperature Probe) Dirty	Clean probe and re-install
	RTD Defective	Replace RTD
	Defective Temperature Control	Replace Temperature control module
3. Water is within temperature range, but is not recirculateing and is constantly flowing to drain	Defective Control Circuit	See steps above
	S1 (N.O. Valve) not energized	Check connection at P3 and DIN connector
	51 (N.O. Valve) stuck Open	Rebuild valve
	52 (N.C. Valve) Constantly Engergized	Replace Defective Temperature Controler
	S2 (N.C. Valve) Stuck Open	Rebuild valve
	Pump not operating	Refer to Pump Related Problems Chart
4. Tank over fills or flows from overflow	Defective fill valve	Rebuild valve
	Solinoid valves defective	Rebuild valves

Troubleshooting guide cont.

Pump Related Problems

Problem	Possible Cause	Action/Correction
1. The pump does not start.	Insufficient water.	Check the water supply/suction pipe.
	Overheating due to excessive liquid temperature (above 95°F)	Supply cold liquid to the pump.
	Overheating due to seized-up/choked up pump.	Contact your pump supplier.
	Too low or too high supply voltage.	Check the supply voltage and correct the fault, if possible.
	No electricity supply.	Connect the electricity supply.
	No water consumption_	Open a tap. Check that the height between the top point of the discharge pipe and the pump does not exceed 45 feet.
	The pump is in alarm condition.	Reset the pump by means of the on/off button. See point 2 in the table in section 4.1 of Grundfos manual.
2. The pump does not stop.	The existing pipework is leaking or defective.	Repair the pipework.
3. The pump cuts out during operation.	Cry running.	Check the water supply/suction pipe.
	Overheating due to excessive liquid temperature (above 95°F)	Supply cold liquid to the pump.
	Overheating caused by high ambient temperature (above 95° F, overloaded motor, or seized up moteripump.)	Contact your pump supplier
	Too low supply voltage	Check the supply voltage and correct the fault, if possible.
4. The pump starts and stops too frequently.	Leakage in suction pipe or air in the water.	Check the water supply/suction pipe.
	Too low or too high pressure in pressure tank.	Check pressure in pressure tank, see section 3.1 in Grundfos manual_
	The check valve is blocked or missing.	Clean the valve or fit a new check valve.
5. The pump gives electrical shocks_	Defective earth connection_	Connect the earth connection to the pump in accordance with local regulations.
6. The pump starts when no water is used.	Defective check valve or the existing pipework is leaking or defective.	Clean the valve or fit a new check valve_

WATER-MIZER PLUSTM replacement parts



Part Description	Part Number
3/4" Swing Check Valve	05009
1" Swing Check Valve	05068
RID (Temperature Probe)	05069
1" N.O. Solinold Valve (S1)	05070
S1 Rebuild Kit	05071
1" N.C. Solinoid Valve (S2)	05072
S2 Rebuild Kit	05073
Fill Valve	05074
Fill Valve Rebuild Kit	05075
Pump (P1)	05076
Pump Check Valve Fittings Kit	05077
3/4" Diverter Valve	05078
3/4" Brass Strainer	05079
Water Holding Tank	05080

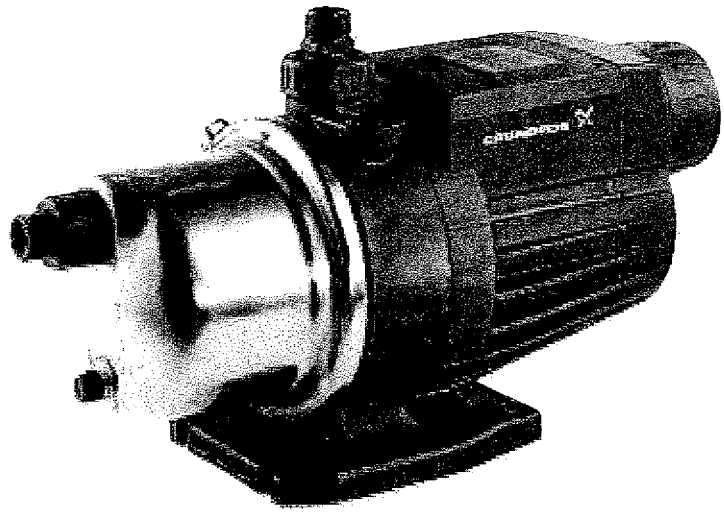
GRUNDFOS **INSTRUCTIONS**

MQ

CD Installation and operating instructions

C) Notice d'installation et d'entretien

Instrucciones de instalacion y funcionarniento



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LIMITED WARRANTY

Products manufactured by GRUNDFOS PUMPS CORPORATION (Grundfos) are warranted to the original user only to be free of defects in material and workmanship for a period of 24 months from data of installation, but not more than 30 months from data of manufacture. Grundfos' liability under this warranty shall be limited to repairing or replacing at Grundfos' option, without charge, F.O.B. Grundfos' factory or authorized service station, any product of Grundfos' manufacture. Grundfos will not be liable for any costs of removal, installation, transportation, or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by Grundfos are subject to the warranty provided by the manufacturer of said products and not by Grundfos' warranty. Grundfos will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair, or if the product was not installed in accordance with Grundfos' printed installation and operating instructions.

To obtain service under this warranty, the defective product must be returned to the distributor or dealer of Grundfos' products from which it was purchased together with proof or purchase and installation date, failure date, and supporting installation data. Unless otherwise provided, the distributor or dealer will contact Grundfos or an authorized service station for instructions. Any defective product to be returned to Grundfos or a service station must be sent freight prepaid; documentation supporting the warranty claim and/or a Return Material Authorization must be included if so instructed.

GRUNDFOS WILL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, OR EXPENSES ARISING FROM INSTALLATION, USE, OR ANY OTHER CAUSES. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTEND BEYOND THOSE WARRANTIES DESCRIBED OR REFERRED TO ABOVE.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages and some jurisdictions do not allow limit actions on'how long implied warranties may last. Therefore, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.

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Before beginning installation procedures, these installation and operating instructions should be studied carefully. The installation and operation should also be in accordance with local regulations and accepted codes of good practice.

1. General description

The MO is a compact water supply system consisting of a pump, motor, pressure tank and controller cornbined in an integral unit.

The pump starts automatically when water is consumed in the installation and stops when the consumption ceases. The MCI is a low-noise pump which can be installed both indoors and outdoors.

Note: When installed outdoors the MO should not be exposed to direct sunlight or rain.

The pump is self-priming and has a check valve incorporated in the discharge port, see fig.1. The pump features a user-friendly control panel.

The pressure tank incorporated in the pump reduces the number of starts and stops in case of leakage in the installation.

The MO pump has built-in overtemperature and dry-running protection.

1.1 Applications

Typical applications:

- Water pressure boosting
  (maximum inlet pressure:45 psi) and
  water supply from wells (maximum suction lift: 25 ft), e.g.
  - in private homes,
  - in summer houses and weekend cottages,
  - on farms,
  - in market gardens and other large gardens.

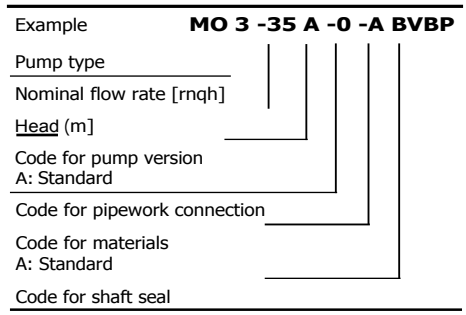
The pump can be used for rain water and has been approved for drinking water.

The maximum suction lift of the pump can be determined from the diagram on page 35.

Example:

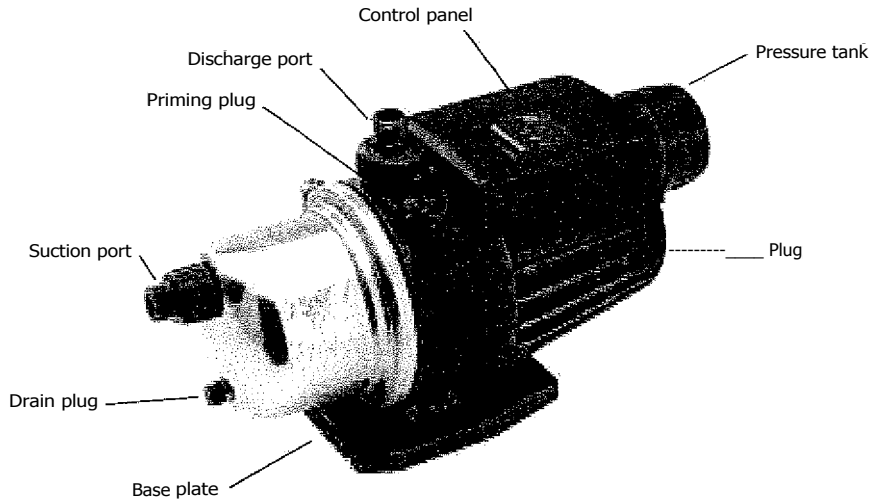
tithe suction lift is 10 ft, the length of the suction pipe must not exceed 72 ft.

1.2 Type key



1.3 MQ pump

Fig.1



2. Pumped liquids

Thin, clean, non-aggressive liquids, not containing solid particles or fibres.

3. Technical data

3.1 Operating conditions

	MQ 3-35	MQ 3-45
Maximum flow rate [gpm]	22	
Maximum pressure [psi]	51	65
Maximum system pressure [psi]	108	
Maximum suction lift [ft], see page 35	25	
Minimum ambient temperature rn	32	
Maximum ambient temperature rn	113	
Minimum liquid temperature [°F]	32	
Maximum liquid temperature rn	95	
Net weight jibs]	29	
Sound pressure level [(MIA)]	< 70	
Tank volume [az]	5	
Air pressure in tank [psi]	22 to 25	
Connections	1" NPT	

32 Electrical data

		NIQ 3-35	MQ 3-45
Enclosure class		IP 54	
Insulation class		B	
Supply cable		6.56 ft H07RN-E with/without plug	
Voltage, power consumption, P_1 *[W]*	1 x 110-120 V 10/+6%, 60 Hz	800/7.2 A	000/9.2 A
	1 x 220-240 V-10/+6%, 60 Hz	850/3.7 A	1050/4.5A

3.3 Dimensions

See dimensions at the end of these instructions.

3.4 Approvals

Materials in contact with the pumped liquid have been approved by the British Water Regulations Advisory Scheme (WRAS) according to B5 6920 for use in drinking water.

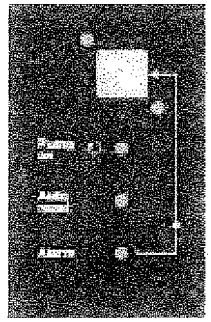
Other approvals: See pump nameplate.

4. Functions

4.1 Control panel

The MO pump is operated entirely by means of the control panel, see fig. 2. The control panel offers the possibility of starting/stopping the pump. The pump settings and operating condition are indicated by indicator lights.

Fig_ 2



rMOI 9684 2600

The functions of the control panel are described in the following **table:**

	Illustration	Description
1		**Indicator light (red):** When the indicator light is on, the pump is an standby.
2		**On/off button:** The pump is started/stopped by means of the on/off button. The on/off button can also be used for manual resetting in case of an alarm condition: • press once for resetting and • press once more for starting.
3		**Indicator light (green);** **indicates** that the pump is ready for operation. **When** the indicator light is on, the pump will start automatically when water is consumed. The pump will stop a few seconds after the water consumption has ceased.
4		**Pump on (green):** The indicator light is on when the pump is running.
5		**Auto-reset (green):** **As** standard, this function is activated on delivery (does not applyto pump versions for Australia). When the indicator light is • on, the Auto-reset function is activated. The pump will automatically attempt to restart every 30 minutes after an alarm/fault **over a** period of 24 hours. After this period, the pump will remain in the alarm condition. • off, the Auto-reset function is deactivated. The pump will not restart after an a farm/fa ult. The **Auto-reset** function can be activated/deactivated by pressing the on/off button **for** 5 seconds. **Note: When water** is consumed, the pump will start and stop automatically, **whether the Auto-reset** light **is** on or off.
6		**Alarm (red):** The indicator light is on when the pump is in alarm condition. The ala rm condition may have been caused by: - dry running, • overtemperature, • overloaded motor or • seized-up motor/pump. See section *4_2 Pump stop.*

Note:The pump settings are stored. After supply failure, the pump will automatically revert to its previous operating condition when the electricity supply is connected again.